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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,132	02/16/2005	Jean-Michel Lagrange	FR 020088	1955

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BIARCLIFF MANOR, NY 10510

EXAMINER

MACKOWEY, ANTHONY M

ART UNIT	PAPER NUMBER
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2624

MAIL DATE	DELIVERY MODE
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12/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/525,132

Applicant(s)

LAGRANGE ET AL.

Examiner

Anthony Mackowey

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/16/05; 9/12/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it includes legal phraseology ("said") throughout. Correction is required. See MPEP § 608.01(b).

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

The disclosure is objected to because of the following informalities:

While it appears the specification contains the required sections, no headings clearly identifying the sections have been included. Examiner suggests adding headings to clearly identify the sections of the specification.

Appropriate correction is required.

Claim Objections

Claims 2, 3, 4, 5, 6, 7 and 8 are objected to because of the following informalities:

Claim 5 recites, "said search step" in line 6 and "said analysis step" in lines 8 and 16.

However, the claim is directed toward a device and means of seeking, analyzing and constructing.

Claims 2, 3 and 4 recite, "the analysis step uses a step of" and claims 6, 7 and 8 recite, "the analysis means use means of." Examiner suggests amending the claim language to recite, for example, "the analysis step includes a step" or "the analysis step comprises a step" and "the analysis means includes a means" or "the analysis means comprises a means."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

MPEP 2164.08(a) states:

A single means claim, i.e., where a means recitation does not appear in combination with another recited element of means, is subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. In re Hyatt, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). When claims depend on a recited property, a fact situation comparable to Hyatt is possible, where the claim covers every conceivable structure (means) for achieving the stated property (result) while the specification discloses at most only those known to the inventor.

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, because the specification, does not reasonably provide enablement for every conceivable structure (means) for performing the method. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. Claims 6-9 depend from claim 5.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,101,238 to Murthy et al. (cited in Applicant's IDS, hereafter referred to as "Murthy").

Regarding claim 1, Murthy discloses a method for combining images of the same object (col. 2, lines 23-35) including the steps of:

seeking contours representing an interface on the images to be combined, said search step being intended to define interest areas close to said representative contours (col. 4, line 1 - col. 5, line 59; col. 7, lines 8-18, *background detection and elimination*),

analyzing interest areas, said analysis step being intended to allocate weights to the points in said interest areas and to the points corresponding to said interest areas on the various images (col. 5, lines 60 – col. 6, line 44; col. 7, lines 42-48, *emphasis field extraction*),

constructing a combination image, a point on the combination image corresponding to a point on at least one interest area being obtained from a weighting of the corresponding points on the images to be combined according to the weights allocated in said analysis step (col. 10, lines 15-25, *compound image generator combining pixels using weighting from emphasis fields*).

Regarding claim 2, Murthy further discloses the analysis step uses a step of evaluating similarity of the interest areas on the images to be combined, the weights being allocated to the various points in said interest areas and to their corresponding points according to said similarity (col. 7, line 42 – col. 8, line 14).

Regarding claim 3, Murthy further discloses the analysis step uses a step of estimating the contrast within at least two interest areas present and similar on two images, the weights being allocated to the various points in said interest areas according to said estimated contrast (col. 10, lines 26-40).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Murthy, WO 01/69282 to Entrekin et al. (cited in Applicant's IDS, hereafter referred to as "Entrekin") and US 5,920,657 to Bender et al. (newly cited, hereafter referred to as "Bender").

Regarding claim 4, Murthy is silent with regard to at least two images to be combined having different resolutions and is therefore silent with regard to a step of evaluating these resolutions within at least two interest areas present and similar on two said images, the weights being allocated to the various points in said interest areas on said two images according to said resolutions.

Entrekin discloses an ultrasonic diagnostic imaging system and method that generates a compound image from images of different resolutions in which the image data has been weighted prior to combining (Fig. 1; page 3, line 19 - page 5, line 33). Entrekin does not explicitly disclose the images are of different resolutions. However, the background section of Applicant's specification discussing the prior art of WO 01/69282 to Entrekin recites, "Images with various resolutions are then combined since the 2D or 3D image of a localized reflector (that is to say the function of the response of the imaging system to a pulse) is highly anisotropic." (page 2, lines 7-10). Thus it is admitted prior art that WO 01/69282 to Entrekin teaches images of different resolutions being combined. Entrekin is silent with regard to the details of how the images are weighted.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Murthy and Entrekin such that method taught by Entrekin is used to determine the weighting and combine ultrasonic images having different resolutions

obtained from an ultrasonic imaging device as taught by Entrekin. This combination would predictably result in substantially improved accuracy and efficiency of the image compositing/compounding/combining of the ultrasonic images of different resolutions of the ultrasonic image diagnostic system taught by Entrekin (Murthy col. 2, lines 12-20). It has been held that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does not more than yield predictable results.” *KSR.*, 127 S. Ct. at 1739, 82USPQ2d at 1395 (2007) (citing *Graham*, 383 U.S. at 12)

The combination of Murthy and Entrekin described above does not disclose evaluating the resolutions within at least two interest areas present and similar on two said images, the weights being allocated to the various points in said interest areas on said two images according to said resolutions. Bender teaches a system and method in which a plurality of images of different resolutions are combined by evaluating the resolutions and weighting the images based on the resolution of the image (col. 17, lines 37-53).

It would have been obvious to one of ordinary skill in art at the time the invention was made to combine the teachings of Murthy, Entrekin and Bender such that the method taught by the combination of Murthy and Entrekin described above is modified to include evaluating the resolutions and allocating weights according to the resolutions, evaluating the resolutions within at least two interest areas present and similar on said two images, the weights being allocated to the various points in said interest areas on said two image according to said resolutions. This combination would predictably result preventing noticeable edges demarking the boundaries between the images from appearing (Bender, col. 17, lines 37-53) thereby improving appearance of the combined image. It has been held that “[t]he combination of familiar elements according

to known methods is likely to be obvious when it does not more than yield predictable results.”
KSR., 127 S. Ct. at 1739, 82USPQ2d at 1395 (2007) (citing *Graham*, 383 U.S. at 12)

Claims 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Murthy and Entrekina.

Regarding claim 5, Murthy discloses a device intended to form a combination image (col. 2, lines 23-35), the result of a spatial combination of images of the same object, including means of:

seeking contours representing an interface on the images to be combined, said search step being intended to define interest areas close to said representative contours (col. 4, line 1 - col. 5, line 59; col. 7, lines 8-18, *background detection and elimination*),

analyzing interest areas, said analysis step being intended to allocate weights to the points in said interest areas and to the points corresponding to said interest areas on the various images (col. 5, lines 60 – col. 6, line 44; col. 7, lines 42-48, *emphasis field extraction*),

constructing a combination image, a point on the combination image corresponding to a point on at least one interest area being obtained from a weighting of the corresponding points on the images to be combined according to the weights allocated in said analysis step (col. 10, lines 15-25, *compound image generator combining pixels using weighting from emphasis fields*).

Murthy discloses the device is used for combining x-ray images but is silent with regard to the device "intended to be integrated in an ultrasonic imaging apparatus. Entrekina discloses an ultrasonic diagnostic imaging system for generating compound images. Regarding combining the

teachings of Murthy and Entrekin such that the device taught by Murthy is integrated into an ultrasonic imaging device such as that taught by Entrekin, arguments analogous to those presented above for claim 4 directed to the combination of Murthy and Entrekin are applicable to claim 5.

Regarding claim 6, Murthy further discloses the analysis means use means of evaluating a similarity of the interest areas on the images to be combined, the weights being allocated to the various points in said interest areas and to their corresponding points according to said similarity (col. 7, line 42 – col. 8, line 14).

Regarding claim 7, Murthy further discloses the analysis means use means of estimating the contrast within at least two interest areas present and similar on two images, the weights being allocated to the various points in said interest areas according to said estimated contrast (col. 10, lines 26-40).

Regarding claim 9, Entrekin discloses an ultrasonic imaging apparatus including a device intended to form a combination image, the result of a spatial combination of images of the same object (Fig. 1).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Murthy and Entrekin as applied to claim 6 above, and further in view of Bender.

Regarding claim 8, the at least two images to be combined taught by Entrekin have different resolutions (see arguments presented above for claim 4). The combination Murthy and Entrekin is silent with regard to the analysis means use means of evaluating these resolutions in at least two interest areas present and similar on two said images, the weights being allocated to the various points in said interest areas on said two images according to said resolutions. Bender teaches a system and method in which a plurality of images of different resolutions are combined by evaluating the resolutions and weighting the images based on the resolution of the image (col. 17, lines 37-53). Arguments analogous to those presented above for claim 4 regarding the combination of the teachings of Murthy, Entrekin and Bender are applicable to claim 8.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,522,390 to Tuithof et al.

US 6,364,835; US 6,511,426; US 2002/0120195 to Hossack et al.

US 6,442,289 to Olsson et al.

US 6,544,177 to Robinson et al.

US 6,554,770 to Sumanaweera et al.

US 6,721,446 to Wilensky

US 2003/0195421 to Demers et al.

US 2004/0006266 to Ustuner et al.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Mackowey whose telephone number is (571) 272-7425. The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AM
12/4/07



BRIAN WERNER
SUPERVISORY PATENT EXAMINER